

STAFF REPORT

ADMINISTRATIVE CIVIL LIABILITY HILMAR CHEESE COMPANY, INC. HILMAR WHEY PROTEIN, INC. CHEESE PROCESSING PLANT MERCED COUNTY

INTRODUCTION

Hilmar Cheese Company, Inc. and its wholly owned subsidiary, Hilmar Whey Protein, Inc., (hereafter “HCC” or Discharger) are privately held California corporations that own and operate a Cheese Processing Plant (hereafter “Plant”) about one-half mile north of the unincorporated community of Hilmar. HCC discharges cheese processing wastewater from the cheese pit and the lactose pit to the “Primary Lands,” adjacent to the Plant. The discharge is regulated by Waste Discharge Requirements (WDRs) Order No. 97-206 and Cleanup and Abatement Order No. 2004-0722 (hereafter “CAO”). Since March 2001, HCC has also provided treated wastewater to other persons for irrigation of “Secondary Lands” near the Plant. The Plant, together with the Primary Lands and Secondary Lands, are collectively referred to as “the Site.”

On 26 January 2005, the Executive Officer for the California Regional Water Quality Control Board, Central Valley Region (Regional Board) issued Administrative Civil Liability (ACL) Complaint No. R5-2005-0501 to HCC, Hilmar Cheese Company Properties Partnership and Kathy and Delton Nyman, dba Delton Nyman’s Farm, pursuant to California Water Code (CWC) Section 13323. The ACL Complaint was later withdrawn as to HCCPP and Kathy and Delton Nyman, dba Delton Nyman’s Farm. The ACL Complaint alleges that (1) HCC’s self-monitoring reports (SMRs) document 1,039 days of violation of the discharge effluent limit of 900 micromhos per centimeter ($\mu\text{mhos/cm}$) for EC¹ (hereafter “EC limit”) prescribed by WDRs Order No. 97-206 for discharges to Primary Lands; (2) HCC’s SMRs document that on those 1,039 days, HCC discharged 821,000,000 gallons of wastewater to the Primary Lands; and (3) on those 1,039 days, HCC discharged waste or caused or permitted waste to be deposited where it was discharged into waters of the state. The ACL Complaint proposes that HCC pay a liability of \$4,000,000 (four million dollars).

BACKGROUND

Site Conditions: The discharge occurs within an area where the water table is shallow due to extensive crop irrigation. Turlock Irrigation District (TID) delivers surface water very low in EC to growers in the area. To protect root zones from the shallow water table, the water table is controlled by tile drain systems that limit its elevation. In general, natural shallow groundwater quality has been affected by the quality of applied irrigation water, and background quality reflects this. The EC in background groundwater in the vicinity of HCC was determined to be 530 $\mu\text{mhos/cm}$ for the relevant period. HCC obtains source water for its cheese processing operations from three deep groundwater wells in or near the Plant.

Historic and Current Discharge Practices, Reports of Waste Discharge and WDRs: The following discussion describes the regulatory history at the Site, including the series of evolving requests by HCC to accommodate the discharges from its increased production at the Site, attempts to mitigate impacts from the discharge, and difficulties with treatment technology employed to meet the limits prescribed in the WDRs, including the EC discharge limit of 900 $\mu\text{mhos/cm}$. In some instances, HCC submitted a

¹ Electrical Conductivity at 25°C.

STAFF REPORT
ADMINISTRATIVE CIVIL LIABILITY
HILMAR CHEESE COMPANY, INC.
HILMAR WHEY PROTEIN, INC.
MERCED COUNTY

- 2 -

new or revised report of waste discharge (RWD) for increased discharge that superseded a pending RWD or followed shortly after adoption of WDRs. As is evident below, HCC's repeated requests for increased discharge flow limits, though HCC had not met all of the previously established requirements for discharge, served to complicate regulatory efforts at the Site.

HCC first obtained WDRs in 1989, after having initiated discharge of wastewater to 20 acres in 1985 and submitting a RWD in August 1988. WDRs Order No. 89-028 allowed discharge of 0.06 million gallons per day (mgd) to 20 acres of disposal area, but required HCC to install groundwater monitoring wells and monitor groundwater quality to assess the effectiveness of land treatment. HCC submitted a new RWD in 1989 for an increased discharge flow limit of 0.14 mgd and an expansion to 38 acres. This RWD resulted in WDRs Order No. 90-123, which allowed the increase but required HCC to install additional groundwater monitoring wells.

By early 1991, EC of the wastewater discharge, background groundwater, and down-gradient groundwater were characterized as 4500, 450, and 4050 $\mu\text{mhos/cm}$, respectively. HCC proposed to address this salinity problem and also the measured high nitrate in wastewater and groundwater by diluting with low EC TID water, implementing salinity reduction measures, and implementing whey recovery. In June 1991, HCC submitted another RWD for an increase in the discharge rate to 0.25 mgd to handle the wastewater generated by whey-concentrating equipment. The whey-concentrating equipment included ultrafiltration (UF) to recover whey proteins for processing and sale and reverse osmosis (RO) to concentrate the UF permeate for animal feed or disposal in dairy lagoons.² The equipment generated RO permeate (low in EC) that HCC would use to dilute the remainder of the wastewater and lower the overall EC of the discharge to land. While tentative WDRs were circulated for public comment, HCC increased the requested discharge rate to 0.35 mgd.

A Regional Board letter dated 22 May 1992 requested information about the RO process. HCC represented that the discharge rate increase would result in a reduction of discharge EC, and that proposed land management would make additional disposal area unnecessary. The 1991 RWD, as modified, resulted in WDRs Order No. 92-156. This WDRs order authorized the discharge of 0.35 mgd on 38 acres, in part on the basis that improvements by HCC would reduce EC concentrations in wastewater and groundwater, and set a limit for EC in groundwater of 900 $\mu\text{mhos/cm}$.³ As required by

² Reverse osmosis, ultrafiltration, and nanofiltration are related membrane technologies used at various times by HCC. In this report "retentate" refers to what does not pass through, and permeate refers to what does pass through, a membrane. Ultrafiltration (UF) removes colloids and high molecular-weight material by pressure. The UF process retains nonionic material and generally passes most ionic matter (that which contributes to EC) depending on the membrane. Nanofiltration (NF) removes all extreme fine matter and RO removes minerals. NF operates at about half the pressure of RO and removes 10% to 90% of dissolved salt, while RO can remove up to 99.5% of dissolved salt. The wide range in removal efficiency for NF reflects variables in the salt concentration in the influent, concentrations of fouling salts and other constituents (chlorine, iron, manganese, and silicates), type and quality of membrane, operating pressure, and the desired quality of the effluent.

³ WDRs Order No. 92-156, Ground Water Limitations, specified a numeric maximum EC of 1600 $\mu\text{mhos/cm}$ but also contained reference to not exceeding maximum contaminant levels (hereafter MCLs) in Title 22, California Code of Regulations (CCR), Division 4, Chapter 15 (hereafter Title 22). The recommended MCL for EC in Title 22 is 900 $\mu\text{mhos/cm}$.

STAFF REPORT
ADMINISTRATIVE CIVIL LIABILITY
HILMAR CHEESE COMPANY, INC.
HILMAR WHEY PROTEIN, INC.
MERCED COUNTY

- 3 -

the WDRs, HCC subsequently submitted a Best Management Practices (BMP) Plan to describe measures HCC could implement to control and dilute salt to meet the groundwater EC limit of 900 $\mu\text{mhos/cm}$. Regional Board staff later approved the BMP Plan.

In June 1994, HCC submitted a new RWD requesting a discharge flow limit of 0.6 mgd and expansion of the disposal area to 114 acres. The project required an initial study and negative declaration to satisfy requirements of the California Environmental Quality Act (CEQA) (California Public Resources Code Section 21000, et seq.), and the Regional Board ultimately adopted WDRs Order No. 94-276. To mitigate degradation of groundwaters from EC due, in part, to HCC's discharges, the WDRs required HCC to evaluate and propose technology to ensure that the discharge complied with an EC limit of 900 $\mu\text{mhos/cm}$ and/or to propose a revised waste management plan to ensure minimal deep percolation of constituents in concentrations that threatened to exceed a groundwater EC limit of 900 $\mu\text{mhos/cm}$.⁴

In accordance with WDRs Order No. 94-276, HCC submitted a document titled *Proposed Technology-Based Treatment Unit Processes and Revised Reclamation Management Plan*. In this Plan, HCC asserted that the EC limit was unnecessarily strict and that an effluent EC of 1300 $\mu\text{mhos/cm}$ would achieve the groundwater EC limit of 900 $\mu\text{mhos/cm}$. The Plan also evaluated the costs of technology-based treatment methods that could be used to meet the EC limit, determined them prohibitively expensive, and proposed that HCC continue to rely upon a land treatment management plan to meet the groundwater EC limit. Regional Board letters from May and July 1995 questioned the effectiveness of land disposal at achieving the groundwater EC limit. Effluent EC had been reduced to 1500 $\mu\text{mhos/cm}$, but down-gradient EC still exceeded the groundwater EC limit and groundwater also showed adverse affects from organic overloading. HCC maintained in December 1995 that its discharge was not degrading groundwater.

Between 1991 and 1996, HCC implemented and continued to employ whey recovery using what it referred to in its correspondence as polishing (the UF and RO) equipment. This polishing equipment produced the low EC permeate from a portion of what comprised the original cheese processing wastewater before 1992, and this permeate was used to dilute the remaining and untreated cheese process waste wastewater to achieve eventually the effluent EC of 1500 $\mu\text{mhos/cm}$. HCC maintained that the balance of EC treatment occurred from treatment on Primary Lands using BMPs. Groundwater data continued to indicate land treatment was ineffective in controlling EC.

In mid-1996, HCC reported that it was required to process an increased milk supply even though the resulting whey exceeded the capacity of HCC's polishing equipment. HCC indicated that it would have additional polishing equipment on-line in three months for more wastewater capacity. In August 1996, HCC submitted a new RWD that requested a discharge flow rate of 0.75 mgd and expansion of the disposal area of the Primary Lands to 138 acres. Regional Board staff indicated the Primary Lands were already overloaded and that operation in accordance with the 1996 RWD would result in impacts to water quality. Regional Board staff requested that HCC submit a RWD proposing a strategy that would

⁴ WDRs Order No. 94-276, Ground Water Limitations, specified no exceedance of the MCL for EC in Title 22 CCR.

STAFF REPORT
ADMINISTRATIVE CIVIL LIABILITY
HILMAR CHEESE COMPANY, INC.
HILMAR WHEY PROTEIN, INC.
MERCED COUNTY

- 4 -

eliminate the impacts on water quality. In late 1996, HCC began conducting pilot studies of the patented Vibratory Shear Enhanced Processing (VSEP™) system using untreated cheese process wastewater.

In March 1997, HCC submitted a RWD proposing full-scale use of the VSEP™ system, stating it would reduce effluent EC in its entire waste stream to about 880 µmhos/cm. Based upon the favorable results of the pilot studies, Regional Board staff supported the use of the VSEP™ system and was optimistic that HCC would soon be able to operate in compliance with applicable orders. The mitigated negative declaration (MND) completed for CEQA purposes identified existing degradation of groundwater from organics, nitrogen, and EC, with the latter up to 4130 µmhos/cm. It also determined that HCC would need to mitigate the impact of current and future increases in wastewater discharges by, among other things, implementing VSEP™ in two phases.⁵ The two phases were targeted to achieve an EC of 1390 µmhos/cm by February 1998 and an EC of 880 µmhos/cm by February 1999. Following approval of the MND, the Regional Board adopted WDRs Order No. 97-206, authorizing discharge of 0.75 mgd to the 138-acre disposal area. WDRs Order No. 97-206, Discharge Specification B.2, states:

Effective 15 March 1999, the EC of the discharge shall not exceed 900 µmhos/cm.

In 1997 HCC intended to use the VSEP™ system to treat all of its wastewater prior to discharge to the Primary Lands. As described below, the system proved less capable than pilot tests indicated. HCC installed, and for a period of years following adoption of the WDRs, made modifications to the VSEP™ system. These modifications at various times included use of nanofiltration (NF) membranes, RO membranes, ultrafiltration (UF) membranes and later the addition of separate, supplemental RO units. Solids loadings on the VSEP™ units caused a high rate of fouling and down time as early as 1997 with operation of VSEP™ units. HCC determined that a single pass through the VSEP™ units was not effective.

While HCC's modifications to the VSEP™ units over time were directed at improving the cost-effectiveness and reliability of treatment, even as modified the system was never adequate to treat all of the wastewater HCC generated. In fact, of the two primary wastewater streams, one routed from the cheese pit and one from the lactose pit, HCC never applied treatment to the lactose pit wastewater until approximately the beginning of 2005, and it experienced recurring difficulties and capacity limitations that prevented treatment of all of the cheese pit wastewater. During a March 2000 inspection, HCC advised Regional Board staff that the VSEP™ technology was failing and would never be fully implemented. Regional Board staff issued HCC a NOV⁶ for various violations of WDRs Order No. 97-206, including failure to comply with the time schedules (including for compliance with the EC limit) set forth therein. While by September 2000 HCC was able to achieve an EC of less than 700 µmhos/cm, this was only with respect to that portion of the total wastewater that HCC passed through the VSEP™ units.

⁵ Other mitigations identified, summarized in Finding 30 of WDRs Order No. 97-206, included prevention of bypass of untreated or partially treated waste, no discharge of designated waste, meeting an effluent limit of 900 µmhos/cm, containing objectionable odors, and not degrading water quality over background.

⁶ NOV dated 30 August 2000.

STAFF REPORT
ADMINISTRATIVE CIVIL LIABILITY
HILMAR CHEESE COMPANY, INC.
HILMAR WHEY PROTEIN, INC.
MERCED COUNTY

- 5 -

In September 2000, the RO retentate was concentrated to total dissolved solids (TDS) of 6,000 mg/L and fixed TDS of 3,000 mg/L.⁷ At first, HCC proposed to store this RO concentrate in a surface impoundment with a polypropylene geomembrane liner prior to use as an animal feed supplement. Thereafter, HCC learned the RO concentrate was not acceptable as feed (because of high nitrogen content) and would require disposal. A Regional Board letter dated 31 October 2000 advised HCC that the RO concentrate was designated waste subject to the full containment standards of Title 27, California Code of Regulations, and that the surface impoundment's liner did not meet the standards.⁸ HCC then reported it would install an evaporator and store the RO concentrate in aboveground tanks pending further concentration before transporting it elsewhere for reuse or disposal.

SMRs show, however, that RO concentrate produced after rejection as feed and before an evaporator could be installed was discharged directly to the Primary Lands after blending with untreated wastewater that already exceeded the EC limit because of insufficient treatment capacity for the entire waste stream. A 20 March 2001 NOV cited HCC for discharging the RO concentrate to land. HCC employed similar practices even after it installed an evaporator unit to reduce RO concentrate volumes in late 2001. While HCC typically transported the reduced volume for disposal elsewhere (e.g., East Bay Municipal Utility District WWTF), HCC also discharged the RO concentrate to the Primary Lands when the evaporator unit was off-line. SMRs also reveal insufficient treatment capacity continuously resulted in bypass and discharge of untreated waste to the Primary Lands. In addition, when any of the VSEP™ units or RO units were off line, SMRs indicate that HCC diverted the untreated wastewater to the Primary Lands. Problems with the VSEP™ units, the RO units, and the evaporator unit resulted in recurring and extended bypass of partially treated waste and in discharge of RO concentrate, a designated waste.

In 2000 and 2001 HCC submitted several components and revisions to RWDs for which Regional Board staff requested clarifying information. A February 2001 RWD requested a discharge limit of 1.5 mgd based upon discharge to 138 acres of Primary Lands and on the use of a portion of the effluent by irrigators of Secondary Lands. By February 2001 HCC had filled new storage impoundments with RO permeate and it requested authorization to initiate conveyance of the RO permeate for irrigation by other persons of Secondary Lands.

In March 2001, HCC reported that the wastewater treated with VSEP™ units and RO units that met the EC limit of 900 µmhos/cm represented approximately 41% of the Plant's total discharge and that this portion of the discharge was now directed to the Secondary Lands. HCC further reported that, since September 2000 when it began discharging RO permeate to the irrigation impoundments instead of blending it with the untreated wastewater prior to discharge to Primary Lands, it had been discharging

⁷ Information provided by HCC dated 29 September 2000 and 16 July 2001.

⁸ CWC 13173(b) defines designated waste, in part, as waste "... that consists of, or contains, pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations exceeding applicable water quality objectives..." The 3000 mg/L of RO concentrate is well over the secondary drinking water MCL of 500 mg/L, a de facto water quality objective, and the RO concentrate as released to Primary Lands must be classified as designated waste.

the undiluted, untreated wastewater to the Primary Lands. The untreated discharge to the Primary Lands consisted of approximately 59% of the Plant's two primary wastewater streams, composed of cheese pit waste that could not be accommodated by the treatment unit capacity (from lack of units or breakdown of units) and the untreated wastewater from the lactose pit.

Several Regional Board staff requests for details of the operation eventually focused on three unresolved issues set forth in a 2 January 2002 letter: bypass of treatment, evaluation of impacts on supply wells, and investigation of impacts on groundwater. The Executive Officer indicated that Regional Board staff would begin drafting tentative WDRs.

By February 2002, HCC apparently also began to evaluate the feasibility of discharging to the City of Turlock's Regional Water Control Facility.⁹ The proposal to discharge to the Turlock Facility would have required HCC to construct a pipeline to the Turlock Facility and payment to Turlock of a substantial one-time connection fee followed by ongoing treatment fees. HCC began to initiate certain waste treatment alternatives designed to facilitate future use of the Turlock alternative. HCC initiated design and easements for the pipeline, as well as design of a dissolved air flotation (DAF) system to reduce eventual loadings to the Turlock Facility. The DAF unit was installed in October 2002, completely replacing the VSEP™ units. Reconciling the 2001 RWD with water quality policies slowed development of WDRs, and this work was completely suspended by staff while it appeared HCC was actively pursuing the Turlock alternative. Turlock advised HCC in February 2003 that the municipal alternative was no longer viable and HCC abandoned the project.

In March 2003 HCC installed eight sand filters between the DAF and RO units. In July 2003 HCC installed a second DAF unit, in December 2003 it began construction of a granular sludge bed anaerobic digester that it placed into service in September 2004, and in April 2004 it began construction of sequencing batch reactors (SBRs) that it placed in service in September 2004. At some point in this process, HCC's planning included provision to treat all HCC cheese processing wastewater prior to discharge.

July 2003 and February 2004 Regional Board letters requested from HCC, among other things, updates on the status of the treatment operations. In August 2004 HCC submitted a new RWD and requested an increased discharge flow limit of 2.0 mgd. This RWD described a wastewater treatment facility (WWTF) intended to treat all of the wastewater HCC generates with (in treatment sequence): (a) one existing and one new DAF units; (b) a new 500,000-gallon expanded granular sludge bed anaerobic digester; (c) a new fully-enclosed, 1-million-gallon pre-aeration tank to remove malodors from anaerobic digester effluent; (d) two new 1-million-gallon sequencing batch reactors (SBRs); and (e) existing RO treatment units in series to reduce SBR effluent salinity. In addition to implementing conventional treatment technology

⁹ HCC received a consultant's proposal at this time. The Regional Board learned that HCC was evaluating the feasibility of discharging to the Turlock Facility when, in August 2002, it received from the City of Turlock a notice of preparation of an environmental document associated with this discharge alternative. HCC itself advised the Regional Board by letter of 5 September 2002.

STAFF REPORT
ADMINISTRATIVE CIVIL LIABILITY
HILMAR CHEESE COMPANY, INC.
HILMAR WHEY PROTEIN, INC.
MERCED COUNTY

- 7 -

prior to RO treatment, the WWTF includes a new 500,000-gallon lipid digester to treat DAF float solids, an existing filter press unit to thicken DAF solids and waste sludge from the anaerobic digester, and one existing and one new evaporator unit. Start-up of the conventional treatment reactors began in January 2005. HCC continues to improve the performance of the biological reactors and to trouble-shoot problems with its RO treatment units due to membrane fouling problems. HCC projects full compliance with the EC limit for discharge to both Secondary and Primary Lands by June 2005.

No wastewater from the lactose pit was subjected to treatment before it was discharged to Primary Lands until it began to be phased into treatment units being brought on line in August 2004. Discharge of untreated and of partially treated wastewater to Primary Lands has been occurring up through the ACL period, though the proportion of treated and untreated wastewater varied. For the ACL period, this amounted to a total of 821 million gallons of a mixture of untreated wastewater, partially treated wastewater, and designated waste (approximately 54%) discharged to Primary Lands, as compared to 689,700 million gallons (approximately 46%) treated and discharged to Secondary Lands. Between December 2000 and the ACL period, it amounted to 220 million gallons of a mixture of untreated wastewater, partially treated wastewater, and designated waste discharged to Primary Lands. From August 2000 through August 2004, while HCC submitted RWDs for increased discharge flow, Regional Board staff issued five NOVs or enforcement letters citing EC limit violations.¹⁰

ADMINISTRATIVE CIVIL LIABILITY

California Water Code, Section 13323 states, in part:

(a) Any executive officer of a regional board may issue a complaint to any person on whom administrative civil liability may be imposed pursuant to this article. The complaint shall allege the act or failure to act that constitutes a violation of law, the provision of law authorizing civil liability to be imposed pursuant to this article, and the proposed civil liability.

California Water Code, Section 13350 states, in part:

(a) Any person who (1) violates any cease and desist order or cleanup and abatement order hereafter issued, reissued, or amended by a regional board or the state board, or (2) in violation of any waste discharge requirement, waiver condition, certification, or other order or prohibition issued, reissued, or amended by a regional board or the state board, discharges waste, or causes or permits waste to be deposited where it is discharged, into the waters of the state, ... shall be liable civilly and remedies may be proposed in accordance with subdivision (d) or (e).

* * *

(e) The state board or a regional board may impose civil liability administratively pursuant to Article 2.5 (commencing with Section 13323) of Chapter 5 either on a daily basis or on a per gallon basis, but not both.

(1) The civil liability on a daily basis may not exceed five thousand dollars (\$5,000) for each day the violation occurs.

* * *

(2) The civil liability on a per gallon basis may not exceed ten dollars (\$10) for each gallon of waste discharged.

¹⁰ 30 August 2000, 22 February 2001, 18 July 2003, 25 February 2004, and 3 August 2004.

Violation of Waste Discharge Requirements

ACL Complaint No. R5-2005-0501 alleges 1,039 days of violation of the EC limit contained in WDRs Order No. 97-206. Each violation is documented in monthly SMRs from HCC covering the period from 27 January 2002 through 30 November 2004 (ACL period). These SMRs contain daily measurements of EC and document that the wastewater discharged to Primary Lands during this period averaged about 2,750 $\mu\text{mhos/cm}$ and ranged from 1,750 to 4,160 $\mu\text{mhos/cm}$ on a monthly basis. The daily measurements document violation of Discharge Specification B.2 each day for 1,039 days, and further document that 821,000,000 gallons of wastewater was discharged to Primary Lands over this period of days.

Data from SMRs from January 1999 through November 2004 document EC at 530 $\mu\text{mhos/cm}$ as background water quality. The Discharger monitors groundwater in a network of 20 wells (MW-1 through MW-20). Most wells are within or along the perimeter of the Primary Lands. First-encountered groundwater is monitored by MW-1 through MW-17 and by MW-20. Two shallow-deep well pairs (MW-11/MW-18 and MW-12/MW-19) provide data from the uppermost and lower portions of the upper aquifer. Wells MW-12, MW-14, MW-16 and MW-17 monitor shallow groundwater beyond the perimeter of the Primary Lands. Only MW-20 appears unaffected by the HCC discharge, other waste sources and freshwater sources. Accordingly, it is considered reflective of background water quality. For purposes of this order, background groundwater quality for EC is 530 $\mu\text{mhos/cm}$.

Monthly groundwater monitoring data from SMRs covering the period from January 27, 2002 through November 2004 show that groundwater in wells within the influence of HCC's wastewater discharge contain an EC ranging from 1,200 to 3,500 $\mu\text{mhos/cm}$.¹¹ Comparison of the data from HCC's groundwater well network to background water quality and to the constituents in HCC's discharge, demonstrates that HCC discharged waste or deposited waste where it was discharged to waters of the state.

Other violations of WDRs Order 97-206 also occurred during the ACL period and these violations contributed to the EC limit violation or resulted from it. In addition, EC violations themselves extend back farther than 27 January 2002. As described below, the violations that preceded January 2002 and violations in addition to EC violations during the ACL period were considered in determining the appropriate amount of civil liability pursuant to CWC Section 13327, which states:

In determining the amount of civil liability, the regional board, and the state board upon review of any order pursuant to Section 13320, shall take into consideration the nature, circumstance, extent, and gravity of the violation or violations, whether the discharge is susceptible to cleanup or abatement, the degree of toxicity of the discharge, and, with respect to the violator, the ability to pay, the effect on ability to continue in business, any voluntary cleanup efforts undertaken, any prior history of violations, the degree of culpability, economic benefit or savings, if any, resulting from the violation, and other matters as justice may require.

¹¹ The period cited in the ACL Complaint for determining groundwater EC characteristics differs from the staff report, which corresponds to the period of the alleged EC limit violations. Accordingly, the ranges and averages of EC for the two periods differ.

Nature, circumstance, extent, and gravity of the violation

The *nature* of the EC limit violations is that HCC regularly discharged to Primary Lands wastewater with salt content not meeting the concentrations prescribed by the Regional Board in WDRs Order No. 97-206. The *extent* of these violations is that, during the ACL period, the EC of the Primary Lands discharge (in $\mu\text{mhos/cm}$) averaged 2,700 and ranged from 1,600 to 6,000 compared to the WDRs effluent limit of 900 $\mu\text{mhos/cm}$, resulting in adverse impacts to groundwater quality.

The *circumstances* of the violations are that HCC's repeated Plant expansions for increased cheese production generated corresponding increases in wastewater without provision for effective treatment capacity and thus led or contributed to continuous violation of the EC limit in the subject discharge. WDRs Order No. 97-206, Discharge Specification B.1, prescribes a maximum monthly average daily discharge flow limit of 0.75 mgd. HCC violated this limit the entire ACL period.¹² While HCC's discharge of approximately 46% of its wastewater to Secondary Lands generally complied with the EC limit, flows greater than available treatment capacity (approximately 54%) were discharged untreated to Primary Lands. On average during the ACL period, 0.79 mgd was discharged to Primary Lands and 0.66 mgd was discharged to Secondary Lands.

To reduce the EC of the discharge, HCC chose the VSEP™ membrane system, but it was never installed to treat all the Plant wastewater and capacity that was installed was effectively decreased by the need to pass the wastewater through the system twice. Applied to only cheese pit wastewater, the VSEP™ technology was supposed to eliminate the need for conventional treatment. It proved less capable than pilot tests indicated, and during a March 2000 inspection HCC advised Regional Board staff that the VSEP™ technology was failing and would never be fully implemented. Regional Board staff issued HCC a NOV¹³ for various violations of WDRs Order No. 97-206, including failure to comply with the time schedules (including for compliance with the EC limit) set forth therein. As noted above, neither VSEP™ technology nor any other technology was used to treat lactose pit wastewater or cheese pit wastewater that could not be handled by the VSEP™ units. The untreated wastewater was discharged to Primary Lands.

As noted above, the RO concentrate exhibits the characteristics of designated waste and HCC was advised of this prior to the ACL period. SMRs document that RO concentrate was nonetheless discharged to the Primary Lands in violation of WDRs Order No. 97-206, Discharge Prohibition A.4.¹⁴

WDRs Order No. 97-206, Discharge Prohibition A.3, prohibits bypass of untreated or partially treated wastewater.¹⁵ Despite the prohibition, HCC relied completely upon bypass of all treatment for lactose

¹² Discharge Specification B.1 states, "The monthly average daily discharge shall not exceed 0.750 million gallons." From 27 January 2002 through November 2004, HCC's average monthly discharge flow ranged from 1.26 to 1.65 mgd, about 0.5 to 0.9 mgd in excess of the permitted limit.

¹³ NOV dated 30 August 2000.

¹⁴ Discharge Prohibition A.4 states, "Discharge of waste classified ... as 'designated,' as defined in Section 13173 of the California Water Code, is prohibited." During the ACL period, RO concentrate discharged from April 2001 through December 2001 (8.5 million gallons) and from 27 January 2002 through January 2003 (1.8 million gallons).

pit wastewater. In addition, due to lack of redundant treatment capacity and problems with treatment units, HCC relied upon discharge of untreated or partially treated cheese pit wastewater to Primary Lands during times when a treatment unit failed and had to be bypassed.¹⁶

WDRs Order No. 97-206, Discharge Specification B.4, requires the Discharger to exercise judgment in daily operations and scale back operations during periods when atmospheric conditions limit the ability of soil and organisms to attenuate waste constituents.¹⁷ HCC did not scale back operations under these conditions. HCC's actions resulted in overloading, malodors, nuisance conditions, a petition by neighbors, and issuance of the CAO.

The **gravity** of the EC violations goes to the seriousness of the threat represented by and impacts caused by the violations. Waste discharge requirements, whether flow limits, prohibitions, specifications, or provisions, are intended to protect water quality and prevent creation of pollution or nuisance. Thus, violations that cause or contribute to such unacceptable conditions are serious and must be corrected or remedied. Violations of the EC limit in WDRs Order No. 97-206 caused or contributed to the pollution in groundwater from EC (and TDS), and threatened pollution from sodium, chloride, and ammonia, as documented in the CAO.

The vertical and horizontal extent of pollution will be defined as part of tasks prescribed by the CAO, but evidence of downward vertical gradient ensures degradation at depth, and may be reflected in the Plant's supply water. The supply wells are screened to 235 feet below ground surface. Water quality data from 1985 indicate the Plant's supply had an EC of less than 500 μ mhos/cm, TDS of less than 350 mg/L, and chloride of 48 mg/L, about one-half the concentrations of current water supply data.

Susceptibility of the discharge to cleanup

As the Basin Plan states, prevention of pollution is more cost-effective than cleaning it up.¹⁸ Salts in groundwater are susceptible to cleanup and are being cleaned up in other areas of California. At this point it is unclear how susceptible to cleanup the groundwater affected by HCC's EC limit violations is. The feasibility of cleanup or containment of the plume will be evaluated as part of the CAO.

Toxicity

The EC violations are an indication of salinity. In this case, TDS, sodium, and chloride, are present in concentrations that would require management measures to avoid adversely affecting production of salt-sensitive crops. The toxicity objective for groundwater set forth in the Basin Plan states: "Ground waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial

¹⁵ Discharge Prohibition A.3 states, "Bypass or overflow of untreated or partially treated waste is prohibited."

¹⁶ Violated every day. Bypassed 821 million gallons of untreated and partially treated waste during the ACL period (typically more than half of the total discharge flow).

¹⁷ Discharge Specification B.4 states, "Waste application rates at the reclamation site shall not exceed the environmental conditions at the site."

¹⁸ Basin Plan, page IV-15.00, under *Antidegradation Implementation Policy*.

use(s). This objective applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances.”

Under this objective, salt at elevated levels is toxic when the beneficial uses include agricultural supply. Depending on the salinity level in the irrigation water, the impact to plants can include reduced growth rate, reduced yield and death, which would be classified as “detrimental physiological responses.”

Ability to pay and ability to continue in business

The current total assessed value of the Plant and the property it occupies is \$35 million according to data from the Merced County Recorder for the tax year 2003-2004. HCC also acquired Proliant Dairy Ingredients Company (formerly a division of Proliant, Inc.) in 2004.¹⁹

HCC processes more than 9 million gallons of milk to produce more than 1 million pounds of cheese per day. As California produced 1,826,353,000 pounds of cheese in 2004 according to the California Agricultural Statistics Service, HCC’s production represents approximately 20 percent of California’s total cheese production. Annual gross income of HCC is reported to be around \$450 million.²⁰

Based on available information staff has no reason to conclude other than that HCC can pay the proposed liability and yet continue to remain in business. In response to the proposed ACL, HCC may provide information with respect to HCC’s ability to pay and continue in business.

Voluntary cleanup efforts

HCC voluntarily supplies potable water to at least two residences.

The greatest number of odor and fly complaints was recorded in summer 2000. Once notified by the Regional Board of nuisance violations, HCC modified discharge management practices (e.g., lightly tilling the soil three days following discharge application to ‘break the fly cycle’) that eventually proved effective at minimizing vector breeding conditions. Odors improved as well, as complaints ceased for that year.

Since issuance of the CAO, HCC has committed in writing to mitigate potential nuisance conditions and comply with directives concerning groundwater.

Prior history of violations

As illustrated in Attachment A, HCC discharged flow greater than that authorized by WDRs between 1991 and 1992, in mid-1996 through early 1997, and from mid-July 1998 through 2001. Although the violations alleged in the ACL Complaint are for the period 27 January 2002 through 30 November 2004, HCC also violated the EC limit in WDRs Order No. 97-206 from its effective date of 15 March 1999 up

¹⁹ Information obtained from Proliant’s website (<http://www.proliantinc.com/company/news/>).

²⁰ Total from 2003 Form 700, *Statement of Economic Interests*, filed by a part owner of HCC.

to the beginning of the ACL period. Other violations of the WDRs Order No. 97-206 are described above, under **Circumstances**, and below, under **Culpability**.

Culpability

On at least six occasions after adoption of WDRs No. 97-206, Regional Board staff notified HCC that it was in violation of the EC limit and other discharge requirements. These violations resulted, at least in large part, from HCC's failure to install sufficient treatment capacity; a deficiency that became greater each time HCC expanded production and increased wastewater discharge rates. HCC is solely and fully responsible for failing to provide the necessary treatment to ensure compliance, and for the decisions to expand the Plant that caused or contributed to the violations.

Culpability may be measured by the standard set by the Regional Board by reference in Provision E.2 of WDRs Order No. 97-206, which incorporates General Provisions A.6 and A.10 of Standard Provisions. General Provisions A.6 states, "The discharger shall take all reasonable steps to minimize any adverse impact to waters of the state resulting in noncompliance with this order," General Provision A.10 states, "The fact that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order shall not be a defense for the discharger's violation of this order." HCC did not reduce cheese production to minimize adverse impacts to groundwater resulting from its noncompliance with the WDRs. Instead, HCC repeatedly expanded production with full knowledge that it was in violation of WDRs Order No. 97-206.

In a 21 January 2005 meeting with Regional Board staff, HCC indicated that reducing cheese production to levels corresponding to the capacity of its wastewater treatment system was not a viable option, as the State's remaining milk processing capacity is insufficient to process the milk volume that would have been turned away by HCC. HCC also noted that the competitive market, including increasing costs of treating waste, caused several milk processors to close old plants, leaving dairies to find other markets for milk, such as HCC. HCC indicated that milk not processed by HCC would have had to be hauled to Idaho or Wisconsin for processing or disposed of by wasting to land.

HCC has indicated that the implementation and operation of the required treatment technology has been difficult with cheese processing wastewater due to the nature of the wastewater, and that its inability to comply with the EC limit was, at least in part, due to solving technological problems that others have not yet been required, or only more recently been required, to address. HCC segregated brines and acids, and implemented housekeeping remedies, in the mid-1990s. HCC has compared finding an effective and reliable technological solution to an extensive research and development effort. Comments from other cheese processors now facing this challenge echo HCC's claims.

HCC is culpable for the violations of WDRs Order No. 97-206 that occurred from discharges to Primary Lands during the ACL period as it was: (a) fully aware of the EC limit for almost five years before the period began; (b) notified by Regional Board staff several times that it was in violation of the EC limit and of the water quality objective for EC; (c) fully aware that discharge requirements specified it decrease, rather than increase, production levels if necessary to achieve compliance; and (d) discharging

untreated wastewater continuously and periodically blending with it partially treated wastewater and designated waste. The technological hurdles and pressure from increased milk production that HCC faced during this period may provide a mitigating effect in considering this factor.

Economic benefit

HCC's website (www.hilmarcheese.com) recently stated that its "commitment has led [HCC] to invest \$55 Million in protecting the environment – a total that will climb to more than \$73 Million in 2005 when [its] new treatment plant is completed and operational." By letter dated 18 February 2005, HCC provided the Regional Board with a summary accounting of past wastewater treatment activities, annual operational expenditures, and capital expenditures that support the amounts announced on its website. Recent annual wastewater operating and capital cost information is summarized in Table 1, below, along with annual wastewater discharge flow and operating costs expressed as \$ per 1000 gallons discharged to both Primary Lands and Secondary Lands.

Table 1

<u>Year</u>	<u>Annual Operating Expenditures, \$¹</u>	<u>Capital Expenditures, \$</u>	<u>Total annual discharge flow (1,000 gallons)</u>	<u>Operating costs \$/1,000 total gallons</u>
1998	946,701	3,458,616	293,673	3.22
1999	1,274,718	3,056,573	314,965	4.05
2000	1,587,562	1,837,662	431,723	3.68
2001	4,430,229	8,940,490	477,928	9.27
2002	5,751,181	1,094,590	485,544	11.84
2003	8,951,948	5,613,926	496,517	18.03
2004	8,671,691	3,605,575	569,101	15.24
2005	<u>12,648,235²</u>	<u>13,430,142²</u>		
Sum	44,262,265	41,037,574		

¹ Excludes depreciation

² Estimated values

Table 1 reflects capital and operating expenditures for HCC wastewater discharges to both the Primary and Secondary Lands. Because HCC was not treating discharges to the Primary Lands, it is reasonable to assume that the majority of both capital and operating expenditures pertain to the treated discharge to Secondary Lands. If 10% of the operating costs concern the Primary Lands discharge and 90% concern the Secondary Lands discharge, the average operating cost per 1000 gallons for the treated wastewater discharged to Secondary Lands during the ACL period was \$29.88.²¹ This would place the operating cost per 1000 gallons discharged to Primary Lands at \$2.79 per 1000 gallons. Charges by various communities in the San Joaquin Valley to industries for a comparable loading of just conventional

²¹ The 10% value appears representative of a low-cost operation when compared to data in Table 2. If greater than 10%, the subsequent alleged economic benefit would be less.

STAFF REPORT
ADMINISTRATIVE CIVIL LIABILITY
HILMAR CHEESE COMPANY, INC.
HILMAR WHEY PROTEIN, INC.
MERCED COUNTY

- 14 -

pollutants in 821 million gallons of wastewater range from \$1.23 (Los Banos) to \$12.99 (Merced) per 1000 gallons.²²

During the ACL period, HCC discharged to Primary Lands 821 million gallons of wastewater with minimal or no treatment at a cost of not more than \$2,290,590. For comparative purposes, the 1.8 million gallons of wastewater comprising RO concentrate would have cost \$234,000 to dispose of at East Bay Municipal Utility District at \$0.13/gallon (as is currently done). For comparative purposes only, to treat the balance, or over 819.2 million gallons, for just conventional pollutants and dispose of it into certain valley community sewerage systems would range considerably in cost, as set forth in Table 2. Table 2, below, summarizes the hypothetical charges for the 821 million gallons, with rates based upon information obtained by Regional Board staff from the cities in a 2001 survey, assuming capacity available and HCC already connected.

Table 2

<u>City</u>	<u>BOD Cost, \$</u>	<u>TSS Cost, \$</u>	<u>Flow Cost, \$</u>	<u>Total Cost, \$</u>	<u>Total and Designated Waste Cost, \$</u>
Bakersfield	1,821,445	485,081	489,062	2,795,589	3,029,589
Visalia	3,260,975	1,072,644	533,430	4,867,049	5,101,049
Tulare	1,448,343	435,207	835,584	2,719,133	2,953,133
S-K-F ¹	4,674,064	1,397,853	927,732	6,999,649	7,233,649
Fresno	4,906,151	1,304,936	393,216	6,604,304	6,838,304
Merced	4,905,270	741,013	245,760	5,892,042	6,126,042
Turlock	1,859,343	863,239	1,542,554	4,265,136	4,499,136
Atwater	9,107,227	956,498	581,632	10,645,357	10,879,357

¹ Selma-Kingsburg-Fowler County Sanitation District

This relative comparison of conventional treatment costs without the more expensive technology required to prevent EC limit violations indicates that similar strength wastewater discharged into a community sewerage system would have cost, on average, \$3.54 million more than incurred by HCC to discharge the same volume of wastewater to Primary Lands.²³ These cost savings can be considered an economic advantage. HCC may have avoided as much as \$22.2 million in operational costs in not treating the 821 million gallons with conventional and salt removal technology.²⁴

²² BOD₅ at reported average of 4200 mg/L and TSS at an assumed 1000 mg/L (from data submitted by others for similar wastes), and using billing rates reported to Regional Board staff in 2001. Assumes for purposes of comparison that the community sewerage system could actually handle such a load without costly expansion that would drive rates up.

²³ The difference between estimated HCC costs of discharge to Primary Lands and the average of the total and designated waste costs at the eight cities.

²⁴ The difference between HCC costs of discharge to Primary Lands and cost if the discharge were subject to the same treatment at the same costs as the discharge to Secondary Lands.

Other economic considerations:

1. Although Plant expansion and increased cheese production may have been necessary to provide processing capacity for raw milk, expansion was primarily for economic growth. It is reasonable to assume that HCC projected a minimum rate of return on capital investment. Plant expansions increased monthly average wastewater flows from 0.5 to 0.9 mgd *over* the permitted discharge flow limit (and even more over the available treatment capacity). The exceedance directly contributed to the cited EC limit violations. HCC gained increased revenues from the increased cheese production without corresponding costs of compliance.
2. Because it lacked adequate treatment capacity during the ACL period, HCC chose (as opposed to decreasing production) to bypass wastewater around treatment units that were not operating properly. These operational cost savings have been captured in the economic benefit analysis of the EC limit violations during the ACL period. The economic benefit from delayed or avoided capital investment in adequate units has not been determined, but would be relatively minor.
3. Between September 2000 and 27 January 2002, HCC discharged wastewater in the same manner as during the ACL period, except that RO permeate was for a period of months discharged to impoundments prior to being distributed to Secondary Lands. The potential economic savings in operating costs from the 220 million gallons of untreated wastewater, partially treated wastewater, and designated waste discharged to Primary Lands between December 2000 and the ACL period ranges between \$1 and \$6 million.²⁵
4. After WDRs Order No. 94-276 required that HCC either provide treatment or propose an effective waste management plan to achieve an EC of 900µmhos/cm in groundwater, HCC submitted a plan but rejected the treatment as being prohibitively expensive. When subsequent study proved land treatment alone ineffective, HCC tested and implemented the less expensive treatment promised by pilot tests of the VSEP™ system. From Table 1, it is readily evident that these decisions saved HCC considerable. The economic benefit to HCC from the lower operating costs during 1998 up until December 2000 (as used in 3, above) appears to have been around \$11 million.²⁶ While selecting the least expensive means of compliance is prudent business practice if effective, the waste management and treatment that HCC provided proved ineffective in protecting groundwater quality. Cost savings to HCC came at the expense of water quality.
5. HCC delayed expenditure of capital for treatment units to treat the wastewater discharged to Primary Lands. The delay extended from before installation of the VSEP™ system to 2004 and 2005 when HCC invested in the last treatment components intended to complete expansion of the treatment system it expects to be adequate to treat all of its waste. The USEPA BEN model yields a savings from interest in delayed capital investment at around \$0.8 to 3.2 million depending on assumptions.

²⁵ 27% (220/821) of that determined for 821 million gallons

²⁶ The difference between HCC operating costs of discharge to Primary Lands in 1998, 1999, and 2000 and the \$14.60 cost estimated by the Plan.

Other factors justice may require

Environmental Justice: Environmental Justice is defined by California statute as "The fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of all environmental laws, regulations, and policies." Fair treatment means that no group of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal environmental programs and policies. The demographics in the Hilmar community do not fit the Environmental Justice criteria.

Deterrence: The effectiveness of the water quality regulatory program depends upon obtaining compliance from dischargers. To discourage future violations of this nature by HCC and others, the liability assessed should serve as an effective deterrent. This must include sufficient incentive to motivate compliance with applicable CEQA mitigation measures and with prohibitions and specifications set forth in WDRs.

Equity: Because of early evidence of impacts on groundwater, a salt effluent limitation was imposed on HCC that took effect in 1999. Despite failing to comply with the EC limit, HCC may have done more than other members of the cheese industry with which it competes, and more than other members of the food process industry in general, to limit the salt impact of its wastewater on groundwater. It has encountered and had to address several technological problems. A comparison of costs of discharge alone of the 821 million gallons of untreated wastewater to Primary Lands show HCC benefited from a cost advantage over possible competitors. However, a comparison of HCC's total waste disposal costs relative to industries that discharge to community sewerage systems shows that those discharging to the community sewerage system have had a significant economic advantage over HCC.

Staff Costs: Staff costs are estimated to be \$45,000 for the complaint and staff report. Staff will spend additional time preparing the agenda package and presentation

STATUTORY MAXIMUM AND MINIMUM LIMITS

The total maximum administrative civil liability for the EC limit violation is either \$5.195 million (on a per-day basis) or \$8.21 billion (on a per-gallon basis). There is no statutory minimum liability for these violations.

ACL AMOUNT

After considering the factors in CWC Section 13327, the Executive Officer issued ACL Complaint No. R5-2005-0501 and proposed that HCC pay a liability of \$4,000,000 (four million dollars).

Attachment:

A Figure of HCC's discharge flow since 1989 compared to prescribed limits